

## **TWC Excerpts for August 7 Committee Meeting**

### **Draft Advice for the Hanford Facility Dangerous Waste Permit (Site-Wide Permit)**

---

**General Advice Points: The Board advises Ecology to review all unit-specific Permits in light of these over-arching concerns as many are applicable to other units.**

1. The Board advises Ecology to revise the Permit to address a general lack of clarity, rationale and logic presented in the document(s) The Board finds no rationale or logic presented in either the overarching or unit-specific Fact Sheets or the unit-specific Permits to support Ecology's decision-making process. (e.g. Modified/Partial closure of an individual unit is not authorized under WAC 173-303- regulations [see 1325-N]).
2. The Board advises Ecology to comprehensively review and revise the Permit(s) condition(s) to ensure that when the permit conditions reflect site closure and refer to unavailable but appropriate past reference documents, the permit include citations/requirements for periodic re-evaluation (e.g. five year post closure re-evaluations). All references in the Permit(s) should be updated and requirements reflect current or future actions.
3. The Board advises Ecology to include in Unit-Specific Permit(s) within the appropriate Addenda, all identified documents and the cited revision of the document (Examples: CERCLA SAPs used for groundwater which are referenced rather than included in the Permit, and full text of all citations to the Tri-Party Agreement and other external documents). The Board advises Ecology to include an active hyper- link(s) to the section(s) of the cited Permit documents.
4. The Board advises Ecology to use its Omnibus Authority under WAC 173-303-815 and include Permit(s) condition(s) to ensure that where Ecology cites in the Permit(s) external documents or processes as permit conditions, that those external processes and documents are subject to an equal review and comment time period as required under WAC 173-303.
5. The Board advises Ecology to maintain a central repository for unit-specific permit information (e.g. design information needs, problem reports, corrective action reports etc.) that is open to public review. The Board further advises Ecology that these records should be available electronically with remote access for continuous public review.
6. The Board advises Ecology to more clearly identify opportunities for public involvement. and to make past versions of the Permit available for comparison with the current draft up for public review.
7. The Board advises Ecology to explicitly reserve its RCRA authority in the Permit instead of abrogating its principle decision-making authority to either DOE or EPA via CERCLA actions (e.g., Deferral to future RI/FS/PP/ROD documents to meet presently required Dangerous Waste Regulation requirements under WAC 173-303 for corrective actions to be in the Permit.)

8. The Board advises Ecology to revise the Permit Part A Forms and Permit conditions to reflect current operational needs and the waste volumes and appropriate waste codes for currently stored in these units (e.g. 400 Area interim waste storage facility & the LLBG).
9. The Board advises Ecology to evaluate and confirm at all information on these Part A forms is consistent with Washington State Dangerous Regulations (WAC 173-303); the Dangerous Waste Permit Application; Part A Form and Instruction publication ECY 303-31 (6-2003) requirements as well as information presented in the SEPA checklists submitted with the Part B Permit application, the unit(s) specific draft Permit Conditions, and the draft factsheet(s).
10. The Board advises Ecology to revise the Permit to replace the words “should” and “may” with enforceable words such as “shall” and “must” when referencing requirements, and make this consistent throughout the entire Permit. (ex: III.10.H.5.d.ii “These drawings *should* include all equipment ... ”)
11. The Board advises Ecology to include a Part II or Unit-specific Permit condition requiring submittal of a modification request when any unit-specific new waste streams have been identified and that this modification goes out for public comment and review. Any modification requests for additional or new waste codes should go out for public review.
12. The Board advises Ecology to include a Permit(s) condition(s) for necessary upgrades and equipment replacement required for safe operations of the Hanford RCRA Permitted facilities.
13. The Board advises Ecology to include a permit condition requiring the use of a Risk Budget Tool to model cumulative effects to groundwater. The permit condition should also include requirements for submittal of the parameters used in the Risk Budget Tool and their selection subject to the permit modification process. The Board suggests this condition be included in the Part II conditions.
14. The Board advises Ecology not to base the risk budget tool on non-validated models.
15. The Board advises Ecology to revise Closure Plan documents to reflect use of MTCA Method B standards only. Performance standards for soils should be based on the most stringent (lowest) values.
16. The Board advises Ecology to include a Permit(s) condition(s) requiring demonstration of adequate soil characterization (including the vadose zone using WAC 173-303-815 its omnibus authority) of all permitted facilities [examples: tank farms; cribs; ponds; and trenches]. The Board advises Ecology this condition to include/revise a permit condition for statistically based sampling design.
17. The Board advises Ecology to provide within the Permit(s) the supporting documentation for the use of waivers to regulations (WAC 173-303-645(11)).
18. The Board advises Ecology to reduce the surveillance and maintenance cost for the Hanford Facility by accelerating closure of older non-RCRA compliant facilities.
19. The Board advises Ecology to include a Permit(s) condition(s) requiring all RCRA-regulated near- surface pipelines to be clean closed per WAC173-303-610.

20. The Board advises Ecology that simply placing a barrier over the top of an area (e.g. a tank farm) or closing an area to industrial closure standards does not remove the obligations to do the cleanup to the highest standards practicable, in accordance with WAC 173-303-610 & 665.
21. The Board advises Ecology to require all Emergency Management/Plans and Procedures for all Part III (operational) units to be included in Permit(s) Addenda and subject to the WAC 173-303-834/840 process and coordinated with DOE requirements.
22. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure that the Independent Qualified Registered Professional Engineer (IQRPE) evaluations for all piping used in operating facilities (Part III units & the SSTs) must evaluate internal corrosion and erosion as well as external galvanic corrosion.
23. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring a comprehensive galvanic protection program, both for buried piping and for interplant connected systems, and in facilities to assure that vessels, hangers, wiring, wire trays and other components are protected from galvanic, chemical, electrical and other forms of corrosion.
24. The Board advises Ecology to include a Permit(s) condition(s) to ensure that effluent pollutant levels in stack exhaust meet human health exposure criteria at the point of release.
25. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring frequent verification and calibration and real time monitoring utilizing sample apparatus that ensures accurate and representative sampling.
26. The Board advises Ecology to work with EPA to seek direct delegation of authority from EPA for implementation of RCRA for wastes released from the beginning of RCRA to state authorization.

<b>Part III: Operating Units:</b>
-----------------------------------

**Waste Treatment and Immobilization Plant Unit:**

1. The Board advises Ecology to revise/include a Permit condition that defines the criteria and standards to be used to identify and evaluate chemical and radiological constituent hazards that could occur at the WTP facility. The Board advises Ecology to include a Permit condition requiring hazard analysis to be performed early in the process, rather than just prior to receipt of waste, to support necessary design change or mitigation.
2. The Board advises Ecology to revise/include a Permit condition requiring response planning for criticality and natural phenomenon (e.g. Cascadia seismic events) that addresses both the direct and indirect effects from major events.
3. The Board advises Ecology to revise/include a Permit condition requiring contingency planning for suffocating CO2 release events from the cooling systems. The Board advises Ecology to revise/include a Permit condition with specific actions to ensure that CO2 fire

- extinguishers are not used on or near high voltage equipment, or in areas that are or may become “confined spaces”.
4. The Board advises Ecology to revise/include a Permit condition requiring contingency planning for response to the damages and difficulties associated with volcanic events (e.g., Highly abrasive ash infiltration into operating spaces resulting secondarily in failure of exit safety equipment to perform).
  5. The Board advises Ecology to revise the Emergency Management Plan to reflect and ensure compliance with new WTP conditions as described in the above advice points for the WTP facility. The Board advises Ecology to revise Permit conditions requiring compliance with Waste Acceptance Criteria and Section 1 Introduction and Addendum B1 to more accurately reflect the NRC’s position on reclassification of ILAW waste as incidental to reprocessing. The NRC has yet to make a determination for Hanford. *Notes:*
  6. The Board advises Ecology not to defer or delegate authority for RCRA actions to external processes and documents and to instead detail standards, requirements, methods and frequencies as permit conditions. The Board advises Ecology to append all referenced versions of documents to the permit with active hyperlinks to the referenced section(s). Some referenced documents appear to be missing from the permit. Examples: Addendum B-1
    - a. Waste Treatment Plant Quality Assurance Project Plan for the Waste Analysis Plan, Rev. 0.;
    - b. 24590-WTP-RPT-MGT-04-001, Rev. 0,Regulatory Data Quality Objectives Optimization Report; and
    - c. RPT-W375LV-EN00002, as amended, Approach to Immobilized Hanford Tank Waste Land Disposal Restrictions Compliance
  7. The Board advises Ecology to update Permit conditions III.10.C.2.n.i through .iv to reflect current dates/future dates.
  8. The Board advises Ecology to revise/include a Permit condition to ensure that Tank Wastes are immobilized in a durable waste form with performance at least equivalent to glass for the entire waste form, and to ensure proper characterization of tank wastes. The Board advises Ecology that it supports vitrification of wastes and opposes alternate waste forms unless there performance can be shown to be at least “as good as glass” (including secondary waste streams - see HAB Advice #258).
  9. The Board advises Ecology to revise/include a Permit condition to ensure the facility’s design is based on sound engineering principles and according to applicable regulations. The Board advises Ecology to include a Permit condition to ensure all necessary testing or studies are performed well in advance of when data is needed for design and construction (see HAB Advice #258).
  10. The Board advises Ecology to revise/include a Permit condition to ensure WTP supporting facilities operate as intended throughout the operational life of the WTP facility while also

performing their respective operations of support for other Hanford facilities (e.g. 242-A Evaporator).

11. The Board advises Ecology to include/revise a Permit(s) condition(s) to require that all engineering drawings included in the permit be stamped by a registered professional engineer [WAC173-303-640].
12. The Board advises Ecology to include/revise a Permit(s) condition(s) to require the Permittee( DOE) to demonstrate that the plant design is technically functional, especially in the case of technical issues identified by the Defense Nuclear Facility Safety Board and/or by Ecology staff related to:
  - a. Mixing (especially for non-Newtonian fluids)
  - b. Particle setting (especially for criticality control, but also for heavy metals – lead, chromium, nickel ...)
  - c. Hydrogen gas generation and deflagration
13. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure that plant systems and all facility vessel designs contain provisions to accomplish clean closure in accordance with WAC 173-303-610 & WAC 173-303-640.
14. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure the emergency plans include an assessment of various modes of systems failures and their impacts on the emergency plans (e.g. common, cascade, sequential, parallel and other modes; age related failures through erosion, wear, corrosion, etc.).
15. The Board advises Ecology to include/revise a Permit(s) condition(s) to require equivalent capabilities for each “train of equipment (e.g. Melter off-gas treatment system)” whenever/where ever multiple parallel trains exist in the facilities.

#### **Double Shell Tank System and 204-AR:**

1. The Board advises Ecology to revise/include a Permit condition for the DST system requiring implementation of technologies which ensure tank wastes maintain their waste acceptance criteria chemistry.
1. The Board advises Ecology to revise/include a Permit condition to ensure leak detection systems are in place to detect leaks from all waste transfer lines (including HIHT), diversion boxes, and other system components (including all ancillary equipment).
2. The Board advises Ecology to revise/include a Permit condition to ensure that all waste which has escaped into the environment (including the Vadose Zone and outside the boundaries of Tank Farms) is identified, characterized such that the vertical and lateral extent of the contamination is identified, and that such releases are remediated in accordance with the Dangerous Waste Regulations under WAC 173-303-645.
3. The Board advises Ecology to make the report required in Condition III.12.D.3 [name of the report?] available to the Hanford Advisory Board and the general public.

**Part V: Closure Units:**

**Single Shell Tank Unit:**

1. The Board advises Ecology to revise Permit condition V.4.B.3.f(e) [refers to releases to the soils and groundwater] to include identification of specific methodology to be used in determining how releases are identified as occurring and the process for compliance with WAC 173-303-640(4) requirements.
2. The Board advises Ecology to include a Permit condition requiring leak detection during any waste retrieval activities. The Board advises Ecology to revise Permit condition V.4.B.3.f (h) [refers to tank integrity assessment] to include identification of the process for selection of the methodology/criteria for determining tank integrity citing also WAC 173-303-640(2) regulations and identify the requirements necessary to be in compliance.
3. The Board advises Ecology to revise Permit condition V.4.G.2.c.i [refers to closure Performance Standards] to include all specific criteria which must be met in order meet the required "Impracticability Demonstration."
4. The Board advises Ecology to revise Permit Condition V.4.G.2.b.1 (a) [refers to Closure Performance Standards] and delete reference to use of Method A. The Board advises Ecology that it is premature to include Permit conditions for landfill closure (V.4.G.2.c.) [refers to use of Landfill Closure Performance Standards] and advises Ecology to delete this section until such time that a Demonstration of Implacability has been determined. A modification to the Permit can be made once this has been done.
5. The Board advises Ecology to revise the V.4.C Conditions [refers to SST Groundwater Monitoring] to reflect and cite WAC 173-303-645(11) [Corrective Action Program for release from regulated units] requirements.
6. The Board advises Ecology to include a Permit condition requiring submittal of all TSAPs (Tank or Component Specific Sampling and Analysis Plans) subject to WAC 173-303-830/840 permit modification requirements.
7. The Board advises Ecology to include a Permit condition requiring submittal of all RD/RA work Plans to Ecology as subject to WAC 173-303-830/840 Permit modification process.
8. The Board advises Ecology to revise Permit condition V.4.B.3.g. (k) & (l) [refers to maps and descriptions of tanks/ancillary equipment/piping distribution] (about what?) to include specific criteria which must be met in order to determine integrity status and retrieval status. [see previous comment regarding Tank Assessments]
9. The Board advises Ecology that the Milestone Schedule for closure of SST does not support WAC 173-303-610 or 173- 340-360(4) requirements. The Board advises Ecology to negotiate a more realistic Closure Compliance Schedule with DOE.

10. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring the construction of new double shell tanks and emptying of the tanks known or suspected of leaking as expeditiously as possible.
11. The Board advises Ecology to include/revise a Permit(s) condition(s) to require a priority basis when establishing plans for emptying tanks (i.e., the “Systems Plan”) and the alternatives considered shall require that the tanks be emptied in RCRA priority (i.e., First priority - known leaking tanks, second priority - suspected leaking tanks, third priority - non-compliant single shell tanks, finally all remaining tank wastes).
12. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure the Permittee (DOE) complies with WAC 173-303 requirements to characterize the vertical and horizontal extent of SST sites contamination.
13. The Board advises Ecology to utilize its Omnibus Authority under WAC 173-303-815 and include a Permit(s) condition(s) requiring characterization (i.e., physical sampling) and monitoring of the vadose zone beneath the SST Tank Farms and other mixed waste sites.
14. The Board advises Ecology to include/revise a Permit(s) condition(s) to ensure better validating leak detection methodology and capability and to establish the criteria for what constitutes acceptable leak detection capability.
15. The Board advises Ecology to include/revise a Permit(s) condition(s) requiring the pumping of water or waste out of “dry wells” and requiring annual (or more frequent) gamma logging of the dry wells to depths >55 feet past the first wetted zone in the soil, and to the full well depth in most cases, to improve early tank waste leak detection.
16. The Board advises Ecology to include/revise a Permit condition(s) requiring the Permittee (DOE) to extend dry wells that do not extend to at least 60 feet and to utilize these wells to perform gamma logging and detection or leaks or extension of contaminate plumes.
17. The Board advises Ecology to include a Permit(s) condition(s) requiring all changes to all groundwater monitoring as specified in RD/RA Work Plans to be incorporated into the RCRA Permit(s) per the WAC 173-303-830/840 process.
18. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure IQRPE certifications to comply with WAC 173-303-640(2) requirements and include certification of the SST leak integrity.
19. The Board advises Ecology to revise/include a Permit(s) condition(s) to require annual submittal of a compliance schedule for closure of tanks to meet Milestones M-045-70 & M-62-45 requirements.
20. The Board advises Ecology to utilize their Omnibus authority under WAC 173-303-815 to include a Permit(s) condition(s) to require annual submittal of a budget report which identifies necessary increases in personnel, equipment, and costs to support compliance with Milestones M-045-70 & M-62-45 requirements.
21. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure closure of the SST System and compliance with Performance Standards is subject to the WAC 173-303-830/840 process.

22. The Board advises Ecology to revise/include a Permit(s) condition(s) to ensure there is a re-evaluation of the Post-Closure care period after 30 years per WAC 173-303-610(7) and WAC 173-303-610(8).
23. The Board advises Ecology to work closely with EPA Headquarters Region 10 RCRA staff to discuss what timeframes are acceptable for the State to allow for known or suspected leaking tanks to remain in that status pending development of treatment. The State should ensure they have written agreement with EPA about what is an acceptable time period to empty the known or suspected leaking tanks, and the non-compliant tanks. [move to the end of SST bullets – should be tied in with emptying of tanks]

**241-CX Tank System:**

1. The Board advises Ecology not to refer to closure actions in non-existent CERCLA documents [e.g. 200-IS-1OU]. Dangerous Wastes closure regulations require these details in an approved Closure Plan.
2. The Board advises Ecology to include a Permit condition(s) citing use of MTCA Method B values to meet the Performance Standards requirements.
3. The Board advises Ecology to revise the cleanup of associated ancillary facilities. Partial closure of facilities is not allowed under WAC -610 or -640